

Composite Functions

1

$$f(x) = 4x \quad g(x) = x + 5$$

Find $fg(4)$

$fg(4)$: g goes first



the letter next to the bracket goes first

$$g(4) = 9$$

$$f(9) = \quad$$

Answer _____

2

$$f(x) = 3x - 2 \quad g(x) = x^2$$

Find $fg(2)$

the letter next to the bracket goes first

$$g(2) = 4$$

$$f(4) = \quad$$

Answer _____

3

$$f(x) = x + 5 \quad g(x) = 4x$$

Find $fg(3)$

the letter next to the bracket goes first

$$g(3) = \quad$$

$$f(\quad) = \quad$$

Answer _____

4

$$f(x) = x^2 \quad g(x) = x - 1$$

Find $fg(6)$

the letter next to the bracket goes first

$$g(6) = \quad$$

$$f(\quad) = \quad$$

Answer _____

5

$$f(x) = 2x + 1 \quad g(x) = x + 3$$

Find $gf(4)$

$$f(4) = \quad$$

$$g(\quad) = \quad$$

Answer _____

6

$$f(x) = 3x \quad g(x) = x^2 + 1$$

Find $gf(2)$

$$f(2) = \quad$$

$$g(\quad) = \quad$$

Answer _____

7

$$f(x) = 2x + 1 \quad g(x) = x + 3$$

Find $fg(x)$

Answer _____

8

$$f(x) = x^2 \quad g(x) = 3x - 1$$

Find $fg(x)$

Answer _____

Composite Functions *further practice*

9

$$f(x) = 3x - 2 \quad g(x) = x^2 + 1$$

Find $gf(x)$. Give your answer in its simplest form.

Answer _____

10

$f(x) = 1.05x$ gives the value, after one year, of £ x put in a savings account. Find $ff(x)$ and say what it gives.

Answer _____

11

$$f(x) = x^2 \quad g(x) = x + 3$$

Solve $fg(x) = 49$

Answer _____

12

$$f(x) = ax + 1 \quad g(x) = x + 4$$

$fg(2) = 25$. Find the value of a .

Answer _____

13

In a sale, $f(x) = 0.8x$ takes 20% off a price of £ x . A voucher takes £10 off: $g(x) = x - 10$. Which gives the lower price, $fg(x)$ or $gf(x)$? By how much?

Answer _____

14

$g(x) = x - 273$ changes x kelvin to °C. $f(x) = 1.8x + 32$ changes x °C to °F. Find a single function that changes kelvin to °F. Use it to change 300 kelvin to °F.

Answer _____

15

$$f(x) = 2x + 1 \quad g(x) = x^2$$

Solve $fg(x) = gf(x)$

Answer _____

16

Jay says $fg(x)$ and $gf(x)$ are always different. Is he right for $f(x) = 3x + 10$ and $g(x) = 2x + 5$? Explain.

Answer _____